# Abstract of the Disclosure

A method and system transmits an input stream of data symbols in a multiple-input / multiple-output wireless communications system that includes $M$ subgroups of transmitting antennas. A stream of data symbols is provided to a combined switch and demultiplexer. The combined switch and demultiplexer selects a subset $L$ of the $M$ subgroups of antennas as active, where $L < M$. The demultiplexer then splits the data stream into $L$ substreams, which are fed to the $L$ subgroups of antennas. Before transmission, each of the $L$ substreams is adaptively modulated and coded to a maximum data rate while achieving a predetermined performance on an associated channel used to transmit the substream. Space-time transmit diversity encoding is applied to each coded substream to generate multiple output streams, one output stream for each antenna of each of the $L$ subgroups. The selection by the switch is based on channel conditions fed back by a receiver of the output streams.